

## Probability

1. Find the probability an odd number is thrown in the toss of a fair die.
2. Suppose a family has three children. Find the probability they have at most one boy.
3. Consider the tossing of a pair of dice. Find the probability that the sum of the two die is 6.
4. Consider again the tossing of a pair of dice. Find the probability the sum is greater than 6.
5. The following is a grade distribution for a class of students.

Grade	Frequency
A	5
B	9
C	9
D	7
F	5

- (a) Calculate the probability a randomly selected student received an A in the course.
- (b) Given that receiving at least a C is passing the course, calculate the probability a student passed the course.
- (c) Calculate the probability a student did not pass the course.

6. The following frequency distribution gives the selling prices of homes in an area.

Selling Range	Frequency
\$250,000 - \$299,999	10
\$300,000 - \$349,999	20
\$350,000 - \$399,999	20
\$400,000 - \$450,000	10

(a) Calculate the probability a randomly selected home sold in the range of \$350,000 to \$399,999.

(b) Suppose you only want to spend at most \$349,999 on a home. Calculate the probability you will find a home in your price range.

7. An exam distribution has a normal distribution with mean 75 and standard deviation 10. Calculate the probability that if the exam is given to a group of students that a student's score will be between 65 and 85.

8. MCAT scores are normally distributed with an average score of 500.5 and a standard deviation of 10.5. Calculate the probability you get a score higher than 521.5 if you take the exam.

9. A single card is drawn from a standard deck of 52 playing cards.

(a) Find the probability the card is a numbered card.

(b) Find the probability the card is not a spade.

(c) Find the probability the card is not a king, queen, or jack.

## Answers:

1.  $1/2$

2.  $1/2$

3.  $5/36$

4.  $7/12$

5. (a)  $5/35$  (b)  $23/35$  (c)  $12/35$

6. (a)  $20/60$  (b)  $30/60$

7. 68%

8. 2.5%

9. (a)  $9/13$  (b)  $39/52$  (c)  $10/13$